

REMARKS

Claims 1-13 are pending and are rejected. Claims 1, 8, 10, and 12 are amended. The first paragraph on page 2, the paragraph beginning on page 3, line 26, and the first full paragraph on page 4 of the specification are amended.

Specification

The Office Action suggests that "Kasil" should be capitalized and accompanied by the generic terminology. Applicants have amended the first paragraph on page 2 of the specification to refer to the trademark as KASILTM. Applicants have also amended the specification to further respect the trademark by stating that the mask strands can be adhered to the ridge by a suitable adhesive such as "one sold under the trademark KASILTM containing potassium silicate." Applicants believe that the amendment overcomes the objection.

Claim Rejection under 35 U.S.C. §112

The Office Action rejects claims 8 and 12 under 35 U.S.C. §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

With respect to claim 8, the Office Action states that the phrase "said fourth member" lacks antecedent basis. As suggested, applicants have amended claim 8 to directly depend from claim 3 where the phrase is first introduced.

With respect to claim 12, the Office Action states that the claim does not clearly indicate the metes and bounds. Applicants have amended claims 10 and 12 to more particularly point out the relationship between the mask strands, the mask frame, and

the barrier ridge elements. In particular, applicants have amended claim 10 to introduce the horizontal elements of a mask frame by reciting the step of "affixing the tension mask to a mask frame having vertical and horizontal elements," and amended claim 12 to recite the step of "aligning the mask strands and the barrier ridge elements such that the mask strands are perpendicular to the horizontal elements of the mask frame and the barrier ridge elements."

With the above amendments to claims 8 and 12, applicants believe that these two claims are definite under 35 U.S.C. §112.

Claim Rejection under 35 U.S.C. §102(b)

(a) Claim 1

The Office Action rejects claim 1 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,406,168 issued April 11, 1995 to Takagi (hereinafter "Takagi"). Applicants have amended claim 1 to more particularly point out the invention and believe that Takagi does not anticipate claim 1 as amended. In particular, applicants believe that Takagi does not disclose or suggest that the third member is closer to the screen than one of the first pair of frame members, as recited in claim 1 as amended.

Takagi discloses using belt-like metal plates arranged on the side frame portions to quickly attenuate the vibration. See col. 2, lines 50-52, col. 3, lines 40-46, FIG. 1B and FIG. 4. In FIG. 1B, strands 105 are attached to the belt-like metal plates 109 (relied upon as the third member). See FIG. 1B. The strands 105, however, are not affixed to frame member 101. In FIG. 4, belt-like plate 309 is at the same height as the frame member 301, i.e., they are at the same distance to the screen.

In light of above analysis, applicants have amended claim 1 to recite that the

third member is closer to the screen than one of the first pair of frame members. The support for this feature can be found, for example, on page 7, lines 16-24 and FIG. 5. Such arrangement prevents the mask strands from losing spatial integrity in relation to each other and to the mask frame 300, and the friction created by this arrangement prohibits mask strands 44 from moving laterally during the welding process of mask strands to cantilever 312A or 312B. See page 6, line 36-page 7, line 6. Specifically, claim 1 as amended recites a tension mask assembly for a cathode ray tube having a screen. The tension mask assembly comprises a mask frame including a first pair of frame members disposed at opposite ends, respectively, of said mask frame; a plurality of mask strands disposed between the first pair of frame members and affixed to said pair of frame members in a manner to produce tension in said mask strands, and a third member for supporting said plurality of mask strands in a first intermediate region of the mask stands, between the pair of frame members, wherein the third member is closer to the screen than one of the first pair of frame members. As discussed above, Takagi discloses that the strands in FIG. 1B are affixed to the belt-like member 109 (relied upon as the third member in the Office Action). The strands are not affixed to frame member 101 (one of the first pair of frame members), as recited in claim 1. For the arrangement disclosed in FIG. 4, as discussed above, Takagi discloses that the belt-like member 309 (relied upon as the third member) has the same height as the frame member 301 (one of the first pair of frame members). Thus, the third member is not closer to the screen than one of the first pair of frame members, as recited in claim 1. Thus, applicants believe that Takagi does not anticipate claim 1 as amended.

(b) Claims 2-6 and 8

The Office Action also rejects claims 2-6 and 8 under 35 U.S.C. §102(b) as being anticipated by Takagi. Applicants believe that Takagi does not anticipate these claims because they directly or indirectly depend from claim 1.

Claim Rejection under 35 U.S.C. §103

(a) Claim 7

The Office Action rejects claim 7 under 35 U.S.C. §103 as being unpatentable over Takagi in view of U.S. Patent No. 5,613,889 issued March 25, 1997 to Nosker et al. (hereinafter "Nosker"). As discussed above, Takagi does not disclose or suggest all the features recited in claim 1 as amended. Thus, claim 7 is patentable over the two references for its dependence from claim 1.

(b) Claim 9

The Office Action rejects claim 9 under 35 U.S.C. §103 as being unpatentable over Takagi in view of U.S. Patent No. 5,111,106 issued March 5, 1992 to Kaplan et al. (hereinafter "Kaplan"). As discussed above, Takagi does not disclose or suggest all the features recited in claim 1 as amended. Thus, claim 9 is patentable over the two references for its dependence from claim 1.

Furthermore, the Office Action states that Kaplan discloses that the third member (FIG. 4b, element 96) is attached to mask stands (element 89) by an adhesive (element 104), as recited in claim 9. Element 89 is actually welded to element 96, and element 104 is actually the weld symbol. See col. 7, lines 59-63 and col. 8, lines 12-14. Thus, the Office Action interprets "welding" as an adhesive. However, neither applicants' specification nor the claims use "welding" and "adhesive" interchangeably.

Thus, the "adhesive" recited in claim 9 does not include "welding." Applicants believe that claim 9 is patentable for this reason alone.

(c) Claims 10-12

The Office Action rejects claims 10-12 under 35 U.S.C. §103 as being unpatentable over Kaplan in view of U.S. Patent No. 6,111,349 issued August 29, 2000 to Kuwana et al. (hereinafter "Kuwana"). Applicants have amended claim 10 to more particularly point out the invention. Applicants believe that claim 10 as amended is patentable because neither reference discloses or suggests that the strands are in contact with but not affixed to the barrier ridge elements, as recited in claim 10. In addition, neither of the two references discloses or suggests that the barrier ridge elements are closer to the screen than one of the vertical and horizontal elements of the mask frame, as recited in claim 10.

The Office Action relies upon element 96 in FIG. 4b of Kaplan as one of the barrier ridge elements, as recited in claim 10. However, some strands are affixed to element 96. See FIG. 4b, and col. 7, line 65-col. 8, line 2. Furthermore, element 96 is not closer to the screen than element 94 (the mask frame). Kuwana discloses an aperture grille structure for a cathode ray tube. Nowhere does Kuwana disclose or suggest any barrier ridge element. Thus, Kaplan and Kuwana, considered singly or in combination, do not disclose or suggest that the strands are in contact with but not affixed to the barrier ridge elements, and that the ridge elements are closer to the screen than one of the vertical and horizontal elements of the mask frame, as recited in claim 10.

From the reasons above, applicants believe that claim 10 as amended is

patentable over the two references.

Similarly, claims 11 and 12 are patentable over the two references for their dependence from claim 10.

(d) Claim 13

The Office Action rejects claim 13 under 35 U.S.C. §103 as being unpatentable over Kaplan in view of Kuwana and U.S. Patent No. 4,857,027 issued August 15, 1989 to Makita et al. (hereinafter "Makita"). Applicants believe that claim 13 is patentable for its direct dependence from claim 10.

Other Amendments

In the specification, applicants have also amended the paragraph beginning on page 3, line 26, and the paragraph beginning on page 4, line 16 to correct typographical errors by indicating that element 30 is a tension mask assembly, consistent with for example, the use of element 30 on page 7, lines 9-13. Similarly, applicants have also amended lines 6-7 on page 2 to correct a typographical error by indicating that the set of barrier ridges are affixed to a tension mask frame consistent with the description on lines 16-18. No new matter is added.

Applicants have also amended claim 1 to add "first" before "pair" on line 5 without changing the scope or the meaning of the claim.

Fee


No additional fee is believed due in regard to this amendment. However, if an additional fee is due, please charge any such fee to Deposit Account No. 07/0832.

Conclusion

In view of all of the foregoing, it is respectfully submitted that the present

application is in condition for allowance and such action is respectfully requested. If, however, the Examiner is of the opinion that such action cannot be taken, please contact the Applicants' attorney at the number and address below in order that any outstanding issues may be resolved without the necessity of issuing a further Action. An early and favorable response is earnestly solicited.

Respectfully submitted,

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January 14, 2003

Please continue to address communications to:

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By: Karen Schleich

“Version with Markings to Show Changes Made”

IN THE SPECIFICATION

Please replace the full paragraph beginning on page 2, line 4 with the following:

The present invention provides a method and apparatus for maintaining uniform spacing between the strands of a tension mask frame. The apparatus includes providing a set of barrier ridges and affixing them to a tension mask. The barrier ridge is aligned perpendicular to the strands of the tension mask and affixed to the frame near the ends of the tension mask. The barrier ridges traverse the length of the tension mask and act to keep the mask strands parallel and equidistantly spaced from each other when faced with applied stress during mask welding and subsequent thermal processing. After the barrier ridges are affixed to the frame. The tension mask is mounted to the mask frame. The barrier ridges are affixed to the frame inside the frame and directly under and in contact with the mask strands. When the tension mask is mounted to the mask frame, the barrier ridges lay inside the mask frame, and between the mask frame and the array region of the tension mask that produces visible image on the screen. The mask strands are in frictional contact with the barrier ridge. They may also be adhered to the ridge by a suitable adhesive such as one sold under the trademark KASIL™ containing potassium silicate [Kasil].

Please replace the full paragraph beginning on page 3, line 26 with the following:

FIG. 1 shows a cathode ray tube 10 having a glass envelope 12 comprises a rectangular faceplate panel 14 and a tubular neck 16 connected by a rectangular funnel 18. The funnel 18 has an internal conductive coating (not shown)

that extends from an anode button 20 to a neck 16. The panel 14 comprises a viewing faceplate 22 and a peripheral flange or sidewall 24 that is sealed to the funnel 18 by a glass sealing frit 26. A three-color phosphor screen 28 is carried by the inner surface of the faceplate 22. The screen 28 is a line screen with the phosphor lines arranged in triads, each triad including a phosphor line of each of the three colors. A cylindrical tension mask assembly 30 is removably mounted in a predetermined spaced relation to the screen 28. The mask may be either a tension focus mask or a tension mask. An electron gun 32 (schematically shown by the dashed lines in FIG. 1) is centrally mounted within the neck 16 to generate three in-line electron beams, a center beam and two side beams, along convergent paths through the mask assembly 30 to the screen 28.

Please replace the full paragraph beginning on page 4, line 16 with the following:

A strand tension focus mask assembly 30, shown in greater detail in FIG. 2, includes two long sides 36 and 38 and two short sides 40 and 42. The two long sides 36 and 38 of the mask assembly parallel a central major axis, x, of the tube. The tension mask assembly 30 includes two sets of conductive lines: strands 44 that are parallel to the central minor axis y and to each other; and crosswires 46, that are parallel to the central major axis x and to each other. The crosswires 46 are coupled to busbars (not shown) on their distal ends and lie above the mask strands. In one embodiment, the strands 44 are flat strips that extend vertically, having a width of about 13 mils and a thickness of about 2 mils, and the crosswires 46 have a round cross section, having a diameter of approximately 1 mil and extend horizontally. In the completed mask, the strands 44 and crosswires 46 are separated from each other by a

suitable insulator such as lead frit.

IN THE CLAIMS

Please amend the following claims.

1 1. (Amended) A tension mask assembly for a cathode ray tube having a screen, said
2 tension mask comprising:

3 a mask frame including a first pair of frame members disposed at opposite ends,
4 respectively, of said mask frame;

5 a plurality of mask strands disposed between said first pair of frame members
6 and affixed to said pair of frame members in a manner to produce tension in said mask
7 strands; and

8 a third member for supporting said plurality of mask strands in a first
9 intermediate region of said mask strands, between said pair of frame members,
10 wherein said third member is closer to the screen than one of said first pair of frame
11 members.

1 8. (Amended) A tension mask assembly according to Claim 3 [1] wherein said third
2 member and said fourth member apply a frictional force to said mask strands.

1 10. (Amended) A method for forming a tension mask assembly in a cathode ray tube
2 having a screen, comprising the steps of:

3 (a) providing a tension mask with a plurality of etched mask strands disposed
4 vertically between two respective end regions;

5 (b) placing the etched mask strands in contact with [affixing] a plurality of barrier
6 ridge elements to the tension mask, wherein the etched mask strands are not affixed to
7 the plurality of barrier ridge elements; and

8 (c) affixing the tension mask to a mask frame having vertical and horizontal
9 elements, wherein the barrier ridge elements are closer to the screen than one of said
10 vertical and horizontal elements.

1 12. (Amended) The method of claim 10 further comprising the step of aligning the mask
2 strands and the barrier ridge elements [to the mask frame] such that [perpendicular to]
3 the mask strands are perpendicular to the horizontal elements of the mask frame and
4 the barrier ridge elements.